

Foot and Ankle Pain at the Primary Care Setting

[See online here](#)

Ankle pain is identified in up to 20% of the cases of musculoskeletal complaints in the outpatient clinics. The most common etiologies of foot and ankle pain can be categorized into arthritis, trauma, sprains and systemic causes. Shoe problems are responsible for a significant proportion of foot pain presentations to the clinic.



Definition

Foot pain is more common among people who wear uncomfortable shoes. Thus, females account for 90% of all patients who present with foot pain. This is because women are more likely to wear high heels, less comfortable shoes or ill-fitted shoes.

Foot pain can be classified into acute foot pain which lasts less than 2 weeks and chronic foot pain which has a duration greater than 2 weeks. The most common cause of ankle pain in the United States is a sprain.

Important Terms Related to the Ankle and Foot

The ankle is a joint that involves the calcaneus and talus of the foot and the tibia and fibula of the leg. Arthritis is a term that refers to the inflammation of a joint and is characterized by the presence of warmth, erythema, pain, swelling, and restriction of motion of the involved joint. A callus is a hard-thickened area of skin that occurs in zones of the foot that are prone to pressure or friction injury such as the heel.

The forefoot is the distal part of the foot and includes the toes and the distal part of the metatarsals. The hindfoot is a term that is used to refer to the heel. The lateral malleolus is an anatomical point of reference that reflects a joint that is found on the lateral aspect of the connection between the fibula and talus. The medial aspect of the tibia and talus joint creates what is known as the medial malleolus.

The outward rotation of the ankle is known as eversion. An everted ankle will present with a medially directed plantar surface of the foot. Inversion is the inward rotation of the ankle. Inversion presents with a laterally directed plantar surface of the foot.

Pes cavus is a high-arched foot. The scientific term for flat foot is pes planus. Podagra is a term that can be used by clinicians to refer to gouty arthritis of the first metatarsophalangeal joint. Finally, a sprain is a term that is used to refer to an injury of a ligament because of sudden stretching.

Common Etiologies of Ankle and Foot Pain

The etiology of ankle or foot pain can be determined from the anatomical location of the maximum point of pain or tenderness. Additionally, the patient's gender and age can also narrow down the differential diagnosis. Finally, the mechanism of injury in a traumatic foot or ankle injuries is an important clue for the most likely diagnosis. The following table summarizes some of the common causes of ankle and foot pain.

Anatomical Location	Differential Diagnosis
	Ankle
Lateral aspect	The most common cause of lateral ankle pain (85% of the cases) is an ankle sprain. The most commonly involved ligament is the anterior talofibular ligament. Distal fibular fracture and peroneal tendonitis are other less common causes of lateral ankle pain.

Medial aspect	Ankle sprains are also responsible for most cases of medial ankle pain. The involved ligament in this scenario is the deltoid ligament. Distal tibial fractures and posterior tibial tendonitis are other less common causes of medial ankle pain.
Posterior aspect	The most common cause of posterior ankle pain is Achilles tendinitis. Retrocalcaneal bursitis and pre-Achilles bursitis can also present with posterior ankle pain. Achilles tendon rupture presents with posterior ankle pain.
Chronic pain	The previous causes of ankle pain are responsible for acute pain (less than 2 weeks). The most common causes of chronic ankle pain include rheumatoid arthritis and reactive arthritis. Gouty arthritis can present with recurrent acute episodes of ankle pain or chronic ankle pain.
Foot Pain	
Forefoot	The most common cause of forefoot pain in adults is a bunion. Bunions are responsible for up to 37% of the cases. Ingrown toenails, Morton neuroma, callus, corns, warts, and metatarsal stress fractures can also present with forefoot pain.
Midfoot	The most common cause of midfoot pain is osteoarthritis. Plantar fasciitis can also involve the midfoot. High-arched feet and flat feet can also present with midfoot pain.
Hindfoot	Pain at the heel is commonly caused by plantar fasciitis. Posterior heel pain might be related to Achilles tendinitis. Plantar warts and callus can also present with heel pain.

History Taking in a Patient with Ankle or Foot Pain

When a patient with ankle or foot pain presents to the clinic, one should start the interview with open-ended questions to avoid leading the patient. For instance, you can ask the patient to describe to you his or her ankle or foot problem.

Ask the patient to point to the area of maximum pain instead of asking if he or she has pain in a certain anatomical location. Establish whether this is new-onset pain, recurrent pain or chronic pain. Finally, ask the patient about the duration of the pain to differentiate between the acute and chronic causes of ankle and foot pain.

The treating physician should pay attention to alarming symptoms. Patients who present with severe ankle pain, fever, warmth and skin redness might have septic arthritis. Adequate diagnostic workup should be started. Patients with a history of recent trauma who are unable to walk or bear weight might have a fracture.

Patients who are unable to walk four steps immediately after an injury are likely to have an ankle fracture and should get a radiographic examination. Patients who are unable to walk after an acute traumatic injury and also complain of numbness or weakness in the

foot might have a fracture compromised by a nerve injury.

If possible, patients with alarming symptoms should be referred to an emergency department in a hospital setting instead of treating them at the primary health care facility.

An Evidence-Based Diagnostic Approach to Ankle and Foot Pain

If a patient presents with foot pain, inquire about fever, ulceration or inflammatory symptoms. If the patient has any of these symptoms, start your diagnostic workup to exclude cellulitis, septic arthritis or rheumatoid arthritis. If none of these features is present, try to determine the point of maximum pain or tenderness.

If the point of maximum tenderness is in the forefoot, ask the patient if the pain is exacerbated by wearing shoes. If yes, then the most likely diagnosis is bunions, ganglion cysts or foot deformities. If the patient does not have any change in the severity of pain with shoe wearing, inquire about the presence of pain and numbness between the toes. If the answer is yes, the most likely diagnosis is interdigital neuroma or corn.

If the patient does not have any pain or numbness that is confined to the area between the toes, you should ask the patient about a burning sensation in the foot. Burning sensation in the foot is suggestive of diabetic neuropathy or tarsal tunnel syndrome. If the patient answers no to all of the previous questions, then inquire about the chronicity of the pain. Chronic foot pain, in that case, is most likely caused by osteoarthritis.

Patients with midfoot pain should be asked about the history of trauma, and their ability to walk should be tested. If they have sustained a recent trauma and they are unable to walk four weight-bearing steps, the most likely diagnosis is a fracture.

If the patient does not have a history of trauma and is able to walk, inquire about foot numbness and tingling. If the patient has foot numbness or tingling sensation, the most likely diagnosis is neuropathy. Otherwise, the most likely etiology would be osteoarthritis.

Patients with hindfoot pain should be asked whether they heard a pop before the sudden onset of pain. If yes, the most likely diagnosis is Achilles tendon rupture. If no, ask about the severity of the pain especially early during the day. If the pain is most severe in the first step of the day, the most likely diagnosis is plantar fasciitis.

A similar algorithm also works for the diagnostic approach of ankle pain. Again, inquire first about the alarming symptoms suggestive of inflammation such as fever, ulceration and acute swelling of the joint. If the patient has these symptoms, a diagnostic workup for cellulitis, septic arthritis, and rheumatoid arthritis should be started.

If the patient does not have any symptoms suggestive of an inflammatory etiology, the location of pain should be determined. If the pain is located on the lateral aspect of the ankle, ask the patient if an acute inversion injury of the foot was sustained. If yes, ask the patient to try to walk four steps. If the patient is unable to walk, the most likely diagnosis is a tibial or fibular fracture. If the patient can walk but with pain, the most likely diagnosis is lateral ligament sprain. If the patient did not sustain such an injury, then the most likely diagnosis is peroneal tendinitis.

If the patient complains of posterior ankle pain, ask the patient if he or she heard a pop before the onset of sudden severe pain. If yes, the most likely diagnosis is Achilles tendon

rupture. If no, then the differential diagnosis includes Achilles tendonitis, pre-Achilles bursitis or posterior heel bursitis.

Patients with medial ankle pain should be asked about a recent eversion injury of the ankle. Like those who have sustained a recent inversion injury, patients with a recent eversion injury of the foot should be instructed to try and walk for four steps. If they are unable to walk, the most likely diagnosis is a tibial or fibular fracture.

If they can walk but with severe pain, the most likely diagnosis is deltoid ligament sprain. Patients who did not sustain a recent eversion injury and present with medial ankle pain might have posterior tibial tendonitis or tarsal tunnel syndrome.

Finally, patients with anterior ankle pain should be asked whether they sustained a recent rotation injury to the ankle. If yes, the most likely diagnosis is a high-ankle sprain. If no, then the pain might be related to arthritis caused by gout, rheumatoid arthritis or reactive arthritis. Gout, rheumatoid arthritis, and reactive arthritis usually present with chronic pain rather than acute pain.

References

The Patient History: An Evidence-Based Approach to Differential Diagnosis, 2nd Edition. Mark Henderson, Lawrence Tierney Jr, and Gerald Smetana. Section X Musculoskeletal System: Foot and Ankle Pain Chapter. Chapter Authors: Deborah Cardell, and Jane O'Rorke.

Legal Note: Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes